

# Digitisation and the Evolving Role of Quantity Surveyors: A study of Professional Perspectives

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**Abstract.** This study explores the transformative role of digitisation on the quantity surveying profession, focusing on its influence on practices, tools, and professional competencies. Employing a qualitative methodology, semi-structured interviews were conducted with quantity surveyors from diverse professional contexts in Southwest Nigeria. The findings reveal that digital tools, notably Building Information Modelling (BIM), enhance efficiency and collaboration but necessitate new skills and adaptation. Barriers such as high costs, resistance to change, and data security concerns were identified. The study concludes by recommending targeted training, phased digital adoption, and government support to ensure equitable integration of digitisation, emphasising its potential to position quantity surveyors as strategic contributors to the construction industry's evolution.

**Keywords:** Digitisation; Quantity Surveying; Building Information Modelling (BIM); Digital Tools; Construction Industry.

## INTRODUCTION

The quantity surveying profession is experiencing a transformative shift fueled by the pervasive influence of digitisation [20]. Digitisation, defined as the adoption and integration of digital technologies to enhance business processes and operations, is reshaping the practices, competencies, and services of quantity surveyors across the globe [19]. This paradigm shift is redefining traditional roles and creating opportunities and challenges that demand an adaptive response from professionals in the field. The pace and depth of these changes underscore the need to understand how digitisation influences the roles and responsibilities of quantity surveyors and the broader implications for the construction industry.

Traditionally, quantity surveyors have played a pivotal role in construction, as the custodians of financial prudence and contractual compliance [1]. Their expertise in cost estimation, procurement, contract management, and project control has been central to delivering projects that align with client expectations regarding time, cost, and quality [17]. However, digital technologies such as Building Information Modelling (BIM), data analytics, and artificial intelligence are reshaping

these functions, making them more integrated, precise, and responsive to modern construction demands [18]. Digital technologies also improve operational efficiency in the construction industry, helping professionals achieve better outcomes and streamline processes [4].

Integrating digital technologies has introduced both opportunities and challenges for the profession. On the one hand, these technologies have enhanced efficiency, accuracy, and collaboration in construction projects [16]. Digitisation has enabled quantity surveyors to automate routine tasks such as cost estimation, measurement, and report generation, allowing them to focus on strategic decision-making and value-added services [19]. On the other hand, it has necessitated a shift in skill sets, requiring quantity surveyors to develop proficiency in software tools, data analysis, and digital workflows. This evolution demands continuous learning and adaptation, placing pressure on professionals to remain competitive in an increasingly technology-driven landscape [17]. Studies have also emphasised that for digitisation to succeed, training and support must be prioritised to equip professionals with the necessary tools [16].

The construction industry is embracing digitisation to address challenges such as cost overruns, delays, and inefficiencies [2]. For instance, BIM facilitates better coordination among project stakeholders by providing a shared digital representation of a project, reducing errors and rework [3]. Similarly, data analytics enables the extraction of actionable insights from project data, helping stakeholders make informed decisions. These advancements are also contributing to the sustainability of the construction industry by optimising resource use and minimising waste. As key players in construction, quantity surveyors are uniquely positioned to drive these changes and maximise the benefits of digitisation [3].

Nevertheless, the transition to digital practices is not without its difficulties. Many quantity surveyors face barriers such as limited access to advanced tools, inadequate training opportunities, and resistance to change within their organisations [19]. Additionally, the reliance on digital systems introduces concerns about data security, intellectual property, and the ethical use of technology. These challenges underscore the need for a strategic approach to digital transformation, where the profession not only adopts new technologies but also addresses the organisational and cultural changes required to integrate them effectively [16]. This highlights the importance of managing technological adoption through structured change management processes [5].

This study aims to explore the multifaceted impact of digitisation on the quantity surveying profession, focusing on how it is transforming professional practices, competencies, and identity. By examining the experiences and perspectives of practitioners, the study seeks to provide insights into the opportunities and challenges presented by digitisation. Understanding these dynamics will ensure the profession's relevance and resilience in a rapidly evolving construction industry.

The findings of this research will contribute to a broader understanding of how digitisation influences professional practices, offering a roadmap for quantity surveyors and industry stakeholders to navigate the ongoing transformation effectively. It also highlights the strategic actions required to address barriers, enhance digital skills, and foster a culture of innovation within the profession. This study aims to position quantity surveyors at the forefront of a digitally empowered construction industry.

## Research Question

1. How does digitisation influence the practice of quantity surveyors?
2. What digital tools do quantity surveyors use to conduct their services?
3. What are the barriers impeding quantity surveyors from adopting digitisation?
4. What are the proposed strategies to fully integrate digitisation into quantity surveying practices?

## Theoretical Framework

Digital transformation, as a phenomenon, is grounded in the integration of digital technologies to alter how organisations and professions operate fundamentally. Theoretical perspectives on this subject offer valuable insights into the dynamics of technology adoption, diffusion, and impact on professional practices. In the context of the quantity surveying profession, these perspectives help frame an understanding of how professionals perceive, adopt, and integrate digital tools into their workflows. The Technology Acceptance Model (TAM) is particularly significant among the relevant theoretical approaches.

*Technology Acceptance Model (TAM).* The Technology Acceptance Model (TAM), developed by [2], is a widely recognised framework that explains how individuals accept and use new technologies. TAM posits that two primary factors influence an individual's decision to adopt a technology:

*Perceived Usefulness (PU)* refers to the degree to which a person believes using a specific technology will enhance their job performance. In quantity surveying, perceived usefulness can be associated with how digital tools such as Building Information Modelling (BIM), data analytics, and automated cost estimation systems streamline processes, improve accuracy, and enable better decision-making. For example, BIM allows for seamless collaboration among stakeholders, reducing rework and enhancing efficiency, directly impacting the perceived utility of adopting such technology.

*Perceived Ease of Use (PEOU):* This represents the extent to which a person believes that using a particular technology will be free of effort. For quantity surveyors, technologies with intuitive interfaces and user-friendly functionalities, such as

automated measurement tools or cloud-based cost management platforms, are more likely to be adopted. The simplicity of these tools reduces the cognitive and technical barriers to adoption, making them more appealing to professionals.

TAM further highlights that *behavioural intention (BI)* to use technology mediates the relationship between PU, PEOU, and actual technology adoption. This intention is shaped by the professional's attitude toward the technology and external factors such as organisational support, training opportunities, and peer influence.

*Application of TAM to Quantity Surveying.* The relevance of TAM in understanding digitisation in quantity surveying lies in its ability to illuminate the factors that drive or hinder technology adoption. Research suggests that quantity surveyors are more likely to embrace digital tools if they perceive tangible benefits, such as improved efficiency in cost management and enhanced accuracy in project forecasting [19]. Similarly, ease of use is crucial, as overly complex systems can discourage adoption, particularly among professionals who lack extensive technical expertise.

Moreover, the TAM framework highlights the role of external variables, such as organisational culture and support systems, in shaping attitudes toward technology. For instance, firms that provide training programs, promote digital innovation, and incentivise technology use create an environment where digital adoption becomes the norm rather than the exception [16].

## METHODOLOGY

*Research Design.* The study employed a qualitative research design to explore the impact of digitisation on the quantity surveying profession. This approach allowed the researcher to delve deeply into participants' experiences and perspectives, capturing the complexities of how digital technologies have influenced professional practices, skills, and roles within the field.

*Data Collection.* Semi-structured interviews were conducted with participants to address the research questions. These interviews provided the flexibility to probe participants' experiences while focusing on the study's core areas of interest. The interview questions were crafted to explore:

a) How digitisation influenced the practice of quantity surveyors.

b) The types of digital tools quantity surveyors use to deliver their services.

c) Barriers impeding the adoption of digitisation in the profession.

d) Proposed strategies to integrate digitisation fully into quantity surveying practices.

*Selection of Participants.* Participants were purposefully selected from diverse professional backgrounds, including private practice, public sector organisations, and consulting firms across Lagos, Ogun and Oyo states, representing the southwest part of Nigeria. The inclusion criteria ensured the representation of individuals actively engaged in quantity surveying, particularly those experienced with digital tools and technologies. This selection process aimed to capture a broad spectrum of perspectives, thereby providing insights into the influence of digitisation across various contexts within the profession in Southwest Nigeria (Lagos, Ogun, and Oyo states).

*Data Analysis.* The data obtained from the interviews were analysed using thematic analysis. This method allowed the researcher to identify and interpret key trends and patterns in the participants' responses. The process involved familiarising myself with the interview transcripts, coding significant excerpts, grouping codes into overarching themes, and interpreting the findings of the research questions.

Through this analysis, the study sought to uncover:

1) The ways digitisation influenced the practices and workflows of quantity surveyors.

2) The range of digital tools employed within the profession, including those used for Building Information Modelling (BIM), data analytics, and automated systems.

3) The challenges and barriers quantity surveyors face in adopting digital tools include training requirements, high costs, and integration difficulties.

4) Participants recommend strategies to overcome these barriers and fully integrate digitisation into professional practices.

*Ethical Considerations.* Ethical principles were strictly adhered to throughout the study to ensure the integrity of the research process and the protection of participants' rights. The researcher ensured that participants' confidentiality was maintained by anonymising all collected data.

Participants were also provided with detailed information about the study's purpose and procedures and were required to give informed consent before involvement.

The interviews were conducted respecting participants' voluntary participation, allowing them to withdraw from the study at any point. Data security measures were also implemented, including the secure storage of interview recordings and transcripts. By addressing these ethical considerations, the researcher upheld the study's credibility and safeguarded the well-being of all participants.

## RESULTS AND DISCUSSION

*Influence of Digitisation on Quantity Surveying Practices.* Participants reported that digitisation has significantly transformed quantity surveying practices. They observed that digital tools have streamlined tasks such as cost estimation, tender preparation, and project management, making these processes more efficient and accurate. Many interviewees highlighted that digitisation has improved stakeholder collaboration, particularly by adopting Building Information Modelling (BIM). One participant noted that "*BIM allows for seamless communication and real-time updates, reducing errors and misunderstandings in project execution.*"

Despite these advancements, participants indicated that the integration of digitisation has also brought about shifts in the skill sets required for quantity surveying. Traditional skills, such as manual cost calculation, are being replaced by competencies in data analytics, software usage, and digital communication. This transition underscores the growing importance of technological proficiency in the profession.

*Digital Tools Used by Quantity Surveyors.* The findings revealed various digital tools that surveyors employ to enhance their services. BIM emerged as the most commonly cited tool, with participants emphasising its utility in cost planning, risk management, and visualisation of project progress. Other tools mentioned included cost management software, project scheduling platforms, and data analytic tools.

Participants also discussed the increasing reliance on mobile applications and cloud-based solutions, enabling remote working and real-time access to project data. One interviewee said, "*With cloud*

*technology, I can work on a project from anywhere, ensuring timely updates and decisions.*" However, the rapid evolution of these tools poses a challenge, as surveyors must continuously update their knowledge and adapt to new platforms.

*Barriers to Digitisation in Quantity Surveying.* Participants identified several barriers impeding the full adoption of digitisation within the quantity surveying profession. The most frequently mentioned challenges included:

**High Costs:** The acquisition and maintenance of digital tools, as well as the training required to use them effectively, were seen as significant financial burdens, particularly for smaller firms.

**Resistance to Change:** Some participants noted that a reluctance among seasoned professionals to embrace new technologies has slowed the pace of digital transformation.

**Integration Challenges:** The compatibility of digital tools with existing workflows and systems was reported as a common issue. One participant remarked that "switching to digital systems often requires an overhaul of traditional processes, which can be time-consuming and disruptive."

**Data Security Concerns:** Several participants expressed concerns about the security and confidentiality of data stored on digital platforms, particularly in the context of cloud-based solutions.

*Strategies for Integrating Digitisation into Quantity Surveying.* The study participants proposed several strategies to overcome these barriers and fully integrate digitisation into quantity surveying practices:

**Investing in Training and Education:** Participants emphasised the need for continuous professional development programs to equip quantity surveyors with the necessary digital skills.

**Collaborative Efforts:** Firms were encouraged to collaborate with technology providers and other stakeholders to develop tailored digital solutions.

**Government Support:** Many interviewees called for government incentives, such as subsidies for acquiring digital tools or tax breaks for firms investing in digital training.

**Gradual Implementation:** Participants suggested a phased approach to digital adoption, allowing professionals to adjust to new tools and processes over time.

The findings of this study underscore the profound impact of digitisation on the quantity

surveying profession. Digital tools such as Building Information Modelling (BIM), project scheduling platforms, and data analytic software enhance operational efficiency and redefine the skill sets required in the profession. This aligns with previous studies that emphasise the significant role of digitisation in enhancing collaboration and improving project outcomes [19]. For instance, BIM has fostered better communication and coordination between project stakeholders, reducing errors and rework [3]. Similarly, data analytics offers valuable insights into project data, contributing to more informed decision-making [18]. However, these advancements also demand continuous learning, adaptability, and a willingness to embrace change, which can be challenging for some professionals, particularly those accustomed to traditional methods [16].

A critical observation from the findings is the disparity in digital adoption between large firms and smaller practices. While larger firms often have the resources to invest in advanced technologies and training, smaller firms may struggle to keep up due to financial constraints. This imbalance could widen the industry's service quality gap and competitiveness. Several studies have pointed out that the digital divide is one of the primary barriers to digital transformation, particularly in smaller enterprises that lack the capital to invest in the latest tools and technologies [5]. Addressing this disparity requires targeted interventions, such as government-funded training programs and affordable access to digital tools for smaller firms. Such measures can promote inclusivity and ensure that all practitioners benefit from digital transformation regardless of firm size [2].

Another notable insight is the evolving role of quantity surveyors as technology becomes more integrated into their workflows. Beyond traditional cost estimation and contract management, digitisation enables quantity surveyors to take on more strategic roles, such as data-driven decision-making and risk analysis. These findings reflect similar trends observed in the broader construction industry, where digital tools foster more data-centric approaches to management and decision-making [17]. This evolution enhances the value of their contributions and positions the profession to address emerging challenges in the construction industry, such as sustainability and resource optimisation [18]. By embracing these expanded responsibilities, quantity surveyors can remain relevant and play a pivotal role in shaping the future of construction. Studies by [16] also

highlight that the shift toward strategic roles allows professionals to offer more value to their clients, aligning with contemporary industry demands.

Furthermore, the barriers identified in this study highlight the need for a holistic approach to digital adoption. Resistance to change, data security concerns, and the complexity of integrating new technologies into existing workflows are significant challenges that must be addressed collaboratively. These barriers are consistent with previous research on digital adoption in construction, which reveals that reluctance to change, fear of job displacement, and issues around data protection are some of the main obstacles to effective technology integration [19]. Professional bodies, industry stakeholders, and educational institutions must collaborate to create an environment supporting seamless digital integration. This includes fostering a culture of innovation, offering incentives for digital adoption, and developing robust data protection frameworks to build trust among professionals [17]. These efforts will help address the inherent challenges in digital integration and support the long-term sustainability of digital practices within the profession.

## CONCLUSIONS

This study has explored the impact of digitisation on the quantity surveying profession, revealing a dynamic transformation driven by technological advancements. Digital tools such as Building Information Modelling (BIM), data analytics, and cloud-based platforms have significantly enhanced the efficiency, accuracy, and collaboration in quantity surveying practices. These advancements have streamlined traditional roles and expanded the scope of responsibilities for quantity surveyors, positioning them as strategic contributors to project success.

Despite these benefits, the study also highlights several challenges that impede the seamless integration of digitalisation. High implementation costs, resistance to change among professionals, and concerns over data security remain significant barriers. Furthermore, the disparity in digital adoption between larger firms and smaller practices emphasises the need for targeted interventions to ensure inclusivity and equitable access to digital tools and training.

The findings underscore the importance of adopting a proactive and strategic approach to

digitisation within the profession. To fully harness the potential of digital technologies, quantity surveyors must continuously update their skills, embrace innovation, and adapt to evolving industry demands. Collaborative efforts among professional bodies, government agencies, and industry stakeholders are crucial to providing the necessary resources and support for this transition.

Ultimately, digitisation represents an opportunity for the quantity surveying profession to enhance its relevance and resilience in a competitive and technology-driven construction industry. By addressing the identified barriers and implementing the proposed strategies, the profession can leverage digital transformation to deliver improved outcomes, meet client expectations, and contribute to the sustainable growth of the construction sector.

## REFERENCES

1. Ashworth, A., Hogg, K., & Higgs, C. (2007). *Willis's Practice and Procedure for the Quantity Surveyor* (13th ed.). Wiley-Blackwell.
2. Davies, R., & Harty, C. (2013). Implementing 'Site BIM': A case study of ICT innovation on a large hospital project. *Automation in Construction*, 30, 15–24. doi: [10.1016/j.autcon.2012.11.024](https://doi.org/10.1016/j.autcon.2012.11.024)
3. Eadie, R., Browne, M., Odeyinka, H., McKeown, C., & McNiff, S. (2013). BIM implementation throughout the UK construction project lifecycle: An analysis. *Automation in Construction*, 36, 145–151. doi: [10.1016/j.autcon.2013.09.001](https://doi.org/10.1016/j.autcon.2013.09.001)
4. Fakoyede, P. D., Diouf, M. D. B., Aruya, G. A., Fakoya, I. A., Enabulele, E. C., Adeleke, O. B., Daramola, M. S., & Adeyemi, T. O. (2024). Comparative Analysis of Digital Technology in Architectural, Engineering Construction Industries Across Six Continents of the World: A Global Perspective. *Path of Science*, 10(7), 3013–3022. doi: [10.22178/pos.106-19](https://doi.org/10.22178/pos.106-19)
5. Gledson, B. J., & Greenwood, D. (2017). The adoption of 4D BIM in the UK construction industry: an innovation diffusion approach. *Engineering, Construction and Architectural Management*, 24(6), 950–967. doi: [10.1108/ecam-03-2016-0066](https://doi.org/10.1108/ecam-03-2016-0066)
6. Hardin, B., & McCool, D. (2015). *BIM and Construction Management: Proven Tools, Methods, and Workflows* (2nd ed.). Wiley.
7. Isikdag, U., & Underwood, J. (2010). Two design patterns for facilitating Building Information Model-based synchronous collaboration. *Automation in Construction*, 19(5), 544–553. doi: [10.1016/j.autcon.2009.11.006](https://doi.org/10.1016/j.autcon.2009.11.006)
8. Jung, Y., & Lee, G. (2015). *The status of BIM adoption on six continents*. Retrieved from <https://zenodo.org/records/1100430/files/10001095.pdf?download=1>
9. Khosrowshahi, F., & Arayici, Y. (2012). Roadmap for implementation of BIM in the UK construction industry. *Engineering, Construction and Architectural Management*, 19(6), 610–635. doi: [10.1108/09699981211277531](https://doi.org/10.1108/09699981211277531)
10. Liang, X., & Lu, M. (2010). 3D Visualisation for Tunnel Boring Machine Steering and Alignment Control in Microtunneling. *Construction Research Congress 2010*, 1–10. doi: [10.1061/41109\(373\)1](https://doi.org/10.1061/41109(373)1)
11. Lu, W., Fung, A., Peng, Y., Liang, C., & Rowlinson, S. (2014). Cost-benefit analysis of Building Information Modeling implementation in building projects through demystification of time-effort distribution curves. *Building and Environment*, 82, 317–327. doi: [10.1016/j.buildenv.2014.08.030](https://doi.org/10.1016/j.buildenv.2014.08.030)
12. McAuley, B., Hore, A., & West, R. (2017). *BICP Global BIM Study - Lessons for Ireland's BIM Programme*. Retrieved from <https://arrow.tudublin.ie/beschrecrep/17/>
13. Miettinen, R., & Paavola, S. (2014). Beyond the BIM utopia: Approaches to the development and implementation of building information modeling. *Automation in Construction*, 43, 84–91. doi: [10.1016/j.autcon.2014.03.009](https://doi.org/10.1016/j.autcon.2014.03.009)

14. NBS. (2018). *National BIM Report 2018*. Retrieved from <https://www.thenbs.com/knowledge/national-bim-report-2018>
15. Olatunji, O. A., Sher, W., & Gu, N. (2010). *Building Information Modeling and Quantity Surveying Practice*. Retrieved from [https://www.researchgate.net/publication/267548336\\_Building\\_information\\_modeling\\_and\\_quantity\\_surveying\\_practice](https://www.researchgate.net/publication/267548336_Building_information_modeling_and_quantity_surveying_practice)
16. Pittard, S., & Sell, P. (2016). *BIM and Quantity Surveying*. Routledge.
17. RICS. (2018). *Digitalisation in Construction Report 2024*. Retrieved from <https://www.rics.org/news-insights/digitalisation-in-construction-report>
18. Sacks, R., Eastman, C., Lee, G., & Teicholz, P. (2011). *BIM Handbook: A Guide to Building Information Modeling for Owners, Designers, Engineers, Contractors, and Facility Managers* (2nd ed.). Wiley.
19. Succar, B., Sher, W., & Williams, A. (2013). An integrated approach to BIM competency assessment, acquisition and application. *Automation in Construction*, 35, 174–189. doi: 10.1016/j.autcon.2013.05.016
20. Wong, A. K. D., Wong, F. K. W., & Nadeem, A. (2011). Government roles in implementing building information modelling systems. *Construction Innovation*, 11(1), 61–76. doi: 10.1108/147141711111104637
21. Wu, W., & Issa, R. R. A. (2014). BIM Education and Recruiting: Survey-Based Comparative Analysis of Issues, Perceptions, and Collaboration Opportunities. *Journal of Professional Issues in Engineering Education and Practice*, 140(2). doi: 10.1061/(asce)ei.1943-5541.0000186